Volume 10

1968-1969

STATE OF ALASKA
Keith H. Miller, Governor

ANNUAL REPORT OF PROGRESS, 1968 - 1969

FEDERAL AID IN FISH RESTORATION PROJECT F-9-1

SPORT FISH INVESTIGATIONS OF ALASKA

ALASKA DEPARTMENT OF FISH AND GAME
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INTRODUCTION

This report of progress involves the findings and work accomplished under the State of Alaska, Federal Aid in Fish Restoration, Project F-9-1, "Sport Fish Investigations of Alaska".

The work conducted during this reporting period constitutes effort on nine separate studies which are crucial in evaluating the sport fishing resources of the State. Recreational demands have necessitated broadening our knowledge of the fishery. All 20 jobs were of continuing nature enabling the Department to keep abreast of present and future impacts on certain fish species. Specifically, the work included work on inventory and cataloging of the sport fish and sport fish waters of the State, sport fishery creel census and access. Special emphasis was given to Dolly Varden, silver salmon, anadromous fish, grayling, salmon, sheefish, pike, and char. The information gathered has provided supporting documentation for better fish management and a basis for necessary future investigations.

The subject matter contained in these reports may be inconclusive. The findings and interpretation are subject to re-evaluation as the work progresses.

Volume 10 Report No. 1-A

RESEARCH PROJECT SEGMENT

STATE: ALASKA

Name: Sport Fish Investigations of Alaska.

Project No: F-9-1

Job No: 1-A

Title: Inventory and Cataloging of the Sport Fish and Sport Fish Waters in Southeast Alaska.

Period Covered: July 1, 1968 to June 30, 1969.

ABSTRACT

As a continuation of the Inventory and Cataloging program, 56 Southeast Alaska lakes were investigated to determine their present and future sport fish potentials.

As a result of the investigational studies, 15 lakes are recommended for stocking.

Eighteen lakes were stocked in Southeast Alaska during the 1968-69 fiscal year either as a continuation of prior stocking programs, or as initial sport fish introductions.

The adult kokanee, Oncorhynchus nerka (Walbaum), transplant program completed in 1967 was evaluated and deemed a limited success.

Creel census was conducted on three Petersburg streams for estimations of total angler effort, and catch, of trout and salmon. Random creel census of freshwater anglers in the Ketchikan area was accomplished.

Preliminary evaluations of the Southeast Alaska program of Arctic grayling, Thymallus arcticus (Pallas), introductions have been summarized.

RECOMMENDATIONS

1. The investigational study be continued on both new waters and those currently included in the management program.

2. Major work efforts be concentrated on waters currently supporting recreational angling pressures; and those in closest proximity to the population centers.

3. Effort be continued to evaluate the overall success of the Southeast Alaska stocking policies, with particular emphasis on the Arctic grayling introductions.

4. Studies be expanded in selected high angler-use areas to provide sport fish effort and harvest information.

OBJECTIVES

1. To assess the physical and biological characteristics of the existing and potential recreational fishery waters within the job area.

2. To evaluate the degree of success obtained from past fishery restoration measures and determine and implement needed population manipulation measures.

3. To investigate, evaluate and develop plans for the enhancement of anadromous fish stocks.

4. To evaluate multiple water-use development projects (public and private) and their effects on the area's streams and lakes for the proper protection of the sport fish resources.

5. To assist, as required, in the investigation of public access status to the area's fishing waters.

TECHNIQUES USED

Information and results obtained from prior studies were used for directing some phases of the work activity.

Fish population sampling, water chemistry determinations, and accumulation of related biological and physical survey data was accomplished by standard techniques and as discussed in previous reports (Heckart, 1966).

Multiple-use activities affecting the sport fish stocks and the biological environment were monitored and recommendations made to various authorities as warranted.

Complete files of field data obtained during the 1968-69 fiscal year are maintained in the respective field offices.

FINDINGS

Upper Southeast Alaska

The upper southeast area includes an approximate 30,000 square-mile area which encompasses the major communities of Juneau, Sitka, Wrangell, Petersburg, Haines, Skagway and Yakutat.

Major investigational and management emphasis was in the area of the larger population centers, Juneau, Sitka and Petersburg. The degree of survey and investigational work conducted on any lake or stream was governed by current management needs, with cognizance of potential demands through road and trail extensions, or angler requests.

Waters more than 50 miles from the population centers were generally given lower priority for survey work as these lakes and streams habitually support less angling pressure due to the cost of transportation.

Kokanee Studies:

Thayer Lake, located on Admiralty Island, was studied during September

of 1968 to evaluate the success of the adult kokanee transplant program initiated in 1965 and completed in 1967. During this period a total of 3,632 spawning kokanee, representing three consecutive age classes, or one life cycle, was transferred from Distin to Thayer Lake (Heckart, 1967).

Fyke nets were fished for a total of 144 hours in 1968 in an attempt to capture spawning kokanee, which as three-year spawners, would represent the progeny of the original 714 adults transplanted in 1965. In addition to a substantial number of cutthroat trout, Salmo clarki (Richardson) and Dolly Varden, Salvelinus malma (Walbaum), only one ripe kokanee was captured: a male, 8.2 inches in length.

Considering the small number of adults transplanted in 1965 and the large size of the lake, the capture of the single fish was considered a promising indication that at least a limited kokanee population has been established. Future emphasis will be placed on evaluating the development and growth of the newly established population.

Lake Investigations, Upper Southeast Alaska:

Investigational studies were conducted on 37 Upper Southeast Alaska lakes during the 1968 field season. Of these lakes, 15 were surveyed for the first time under the program of basic inventory. The remaining 22 were re-evaluated to determine the success of previous stockings, age-growth data, current effects of angling, and related biological information.

The lakes initially surveyed and their locations are presented in Table 1.

TABLE 1 - Initial Lake Surveys, Upper Southeast Alaska, 1968.

Lake	Location	Latitude	Longitude	Quadrangel
Sitka Area				
Beaver-Alex.	Admiralty Is.	57°40'	134°12'	Sitka C-1
Diana	Baranof Is.	56°53'	135°02'	Pt. Alex. D-4
Jim's	Admiralty Is.	57°34'	134°16'	Sitka C-1
McKinney	Admiralty Is.	57°40'	134°18'	Sitka C-1
Section 15*	Baranof Is.	57°22'	135°35'	Sitka B-5
Section 16*	Baranof Is.	57°22'	135°38'	Sitka B-5
Section 17*	Baranof Is.	57°22'	135°39'	Sitka B-5
Section 21*	Baranof Is.	57°21'	135°38'	Sitka B-5
Petersburg Area				
Cavern	Prince/Wales	56°10'	133°10'	Petersburg A-4
Irish	Kupreanof Is.	56°42'	133°31'	Petersburg C-5
Marten	Bradfield Ca.	56°16'	131°52'	Bradfield B-6
Twin Island	Prince/Wales	56°10'	133°12'	Petersburg A-4
Goat*	Pt. Houghton	57°28'	133°03'	Sumdum B-4
Upper Marten	Bradfield Ca.	56°17'	131°50'	Bradfield B-6
Stump*	Pt. Houghton	57°21'	133°02'	Sumdum B-4

*Unofficial name.

TABLE 2 - Test Netting Summaries, Upper Southeast Alaska, 1968.

Lake Name	Species*	No. of Fish	Length Range Centimeters	Length Mean Centimeters	Catch Frequency**	Percent Comp.
Baranof Island						
Avoss	Rb	11	16.5 - 25.7	20.8	0.47	100
Gen-Gen	DV	13	12.4 - 19.0	15.5	0.54	100
Gar	Rb	7	12.3 - 24.2	19.5	0.53	100
Deer	Rb	35	16.2 - 30.3	23.7	0.43	100
Pass	Rb	5	20.0 - 26.5	23.3	0.21	100
Green	Eb	37	12.0 - 36.3	22.1	0.77	100
Swan	DV	2	32.8 - 40.1	36.4	0.12	28
	Ct	5	30.4 - 38.0	32.5	0.31	72
Rostislaf	Rb	52	19.0 - 24.4	19.3	0.72	100
Diana	No Fish Taken					
Unnamed (Sec. 15)	Ct	46	11.4 - 21.0	15.8	1.64	100
Unnamed (Sec. 16)	No Fish Taken					
Unnamed (Sec. 17)	No Fish Taken					
Unnamed (Sec. 21)	No Fish Taken					
Beaver	Gr	24	19.6 - 30.7	26.5	1.14	100
Admiralty Island						
Jim's	DV	14	10.1 - 23.6	18.5	0.20	26
	Ct	17	20.5 - 53.8	29.0	0.24	32
	Kok	22	10.1 - 19.0	17.0	0.31	42
Hasselborg	Ct	28	18.2 - 42.6	25.6	1.56	68
	DV	13	17.5 - 33.0	24.1	0.72	32
McKinney	Ct	58	11.4 - 29.4	22.6	1.61	89
	DV	7	19.5 - 24.8	22.6	0.19	11
Beaver-Alex.	Ct	37	17.7 - 30.4	24.9	0.97	69
	Kok	14	14.9 - 19.8	17.8	0.37	30
	DV	3	16.5 - 24.3	19.8	0.08	1

TABLE 2 (Cont.) - Test Netting Summaries, Upper Southeast Alaska, 1968.

Lake Name	Species*	No. of Fish	Length Range Centimeters	Length Mean Centimeters	Catch Frequency**	Percent Comp.
Chichagof Island						
Suloia	DV	172	14.5 - 22.9	18.7	3.73	100
Biorka Island						
Biorka	Rb	20	15.2 - 44.4	28.6	0.83	100
Kruzof Island						
Surprise	Gr	9	18.0 - 24.3	21.0	0.20	100
Mainland - Skagway Area						
Lower Dewey	Rb	85	13.9 - 27.9	19.5	0.57	98
	Eb	1	---	20.9	0.02	1
	DV	1	---	19.3	0.02	1
Partofshikof Island						
Unnamed (Partofshikof)	No Fish Taken					
Kupreanof Island						
Irish Lake	Ct	136	9.6 - 33.5	21.8	2.83	72
	DV	37	11.2 - 21.1	16.8	0.77	19
	Kok	14	15.7 - 19.3	18.0	0.29	9
Mainland - Petersburg Area						
DeBoer	Rb	18	14.9 - 27.9	18.0	0.18	100
Unnamed (Goat Lake)	No Fish Taken					

TABLE 2 (Cont.) - Test Netting Summaries, Upper Southeast Alaska, 1968.

Lake Name	Species*	No. of Fish	Length Range Centimeters	Length Mean Centimeters	Catch Frequency**	Percent Comp.
Goat Lake (Stikine R.)	Rb	18	16.5 - 28.7	22.6	0.18	100
Marten Lake (Lower)	Ct	30	16.5 - 46.7	26.9	0.62	44
	DV	16	11.2 - 25.4	20.8	0.33	23
	Kok	21	16.3 - 19.1	17.0	0.36	33
Marten Lake (Upper)	No Fish Taken					
Swan Lake	Rb	51	14.9 - 46.2	26.9	1.06	100
Unnamed (Stump Lake)	DV	5	11.9 - 13.9	12.9	0.10	100
Spurt Lake	Rb	2	8.8 - 12.4	10.6	0.05	50
	DV	2	24.9 - 28.5	26.7	0.05	50
Tyee Lake	Gr	39	9.6 - 25.6	18.5	0.27	100
Virginia Lake	Ct	80	13.9 - 32.5	21.8	1.66	89
	DV	4	16.3 - 19.1	17.5	0.08	4
	Kok	5	17.3 - 19.1	18.0	0.10	7
Mitkof Island						
Crystal Lake	Eb	46	13.9 - 28.4	21.1	0.31	100
Prince of Wales Island						
Cavern Lake	Ct	6	17.3 - 27.4	22.6	0.25	60
	DV	3	17.8 - 19.1	18.5	0.12	30
	SS	1	---	58.4	0.04	10
Twin Island Lake	Ct	16	18.3 - 39.1	27.2	0.33	75
	Kok	8	16.5 - 20.3	18.5	0.17	25

*DV - Dolly Varden; Rb - Rainbow; Ct - Cutthroat; Gr - Grayling; Kok - Kokanee; Eb - Eastern Brook; SS - Silver Salmon; RS - Red Salmon.

**Fish catch per hour in 125' vari-mesh gill net.

A summation of the 37 lakes sampled for fish population analysis in Upper Southeast Alaska is presented in Table 2. Variable-mesh monofilament gill nets were used for the sampling and were normally fished for two nights or longer on occasion, depending somewhat on the distance from Sitka. The intent of the test netting was to capture a sample of fish for biological analysis and for general determinations as to the suitability of the population for recreational fishing.

Fish Stockings:

A total of 13 lakes in Upper Southeast Alaska was stocked during 1968 with Arctic grayling and rainbow trout, or steelhead, Salmo gairdneri (Richardson).

With the exception of Starrigavan Peak Lake, which was stocked with grayling for the first time, all the lakes shown in Table 3 were stocked as a continuation of existing management programs.

TABLE 3 - Lake Stockings, Upper Southeast Alaska, 1968.

Lake	Location	Species	Number
Sitka Area			
Biorka	Biorka Island	Rainbow	2,600
Partofshikof	Partofshikof Island	Grayling	10,000
Pass	Baranof Island - Whale Bay	Rainbow	4,600
Starrigavan Peak	Baranof Island	Grayling	10,000
Petersburg Area			
Spurt	Thomas Bay-Mainland	Rainbow	13,300
Tyee	Bradfield Canal	Grayling	19,800
Juneau Area			
Glacier Pond	Juneau Mainland	Grayling	30,000
Louie Pond	Juneau Mainland	Rainbow	2,500
Marshall Pond	Juneau Mainland	Rainbow	5,000
Moraine Pond	Juneau Mainland	Grayling	20,000
Peterson Lake	Juneau Mainland	Steelhead	15,000
Q T Pond	Juneau Mainland	Rainbow	2,500
Skagway Area			
Lower Dewey	Skagway Area	Rainbow	5,180

Four lakes were chosen from those investigated in the Sitka and Petersburg areas for initial fish introductions. These barren lakes, their locations and the recommended species of fish to be stocked are included in Table 4.

TABLE 4 - Fish Stocking Recommendations, Upper Southeast Alaska, 1968.

Lake	Location	Recommended Species
Sitka Area		
Biorka*	Biorka Island	Rainbow
Cold Storage	Baranof Is. - Katlian Bay	Rainbow
Diana	Baranof Is. - Crawfish In.	Rainbow
Partoshikof**	Partoshikof Is.	Grayling
Petersburg Area		
Goat**	Pt. Houghton - Mainland	Grayling
Spurt*	Thomas Bay - Mainland	Rainbow

*Currently included in a rainbow stocking program.
**Unofficial name.

Grayling Introduction, Southeast Alaska

Arctic grayling, an exotic species to Southeast Alaska, were first introduced in 1950 and 1951 by the Territorial Department of Fisheries. The initial stocks were 6- to 12-inch adults originating from McDonald Lake, British Columbia. These adult fish were planted in several lakes with existing fish populations; and possibly as a result, the introductions failed.

The Department of Fish and Game conducted its first grayling stockings in Southeast Alaska in 1962, with stocks originating from Poplar Grove Creek and Mud Creek in the Gulkana River drainage of Alaska.

All subsequent stockings originated from the Moose-Tolsona Lake system, also in the Glennallen area. With one or two local exceptions, all stockings since 1962 have been with grayling fry hatched at the Department's Fire Lake Hatchery near Anchorage.

A total of 28 lakes in Southeast Alaska has been stocked with Arctic grayling. These waters, their locations and brief comments regarding the stocking success are shown in Table 5.

The results of the grayling introductions have been varied and have resulted in successes in some areas and failures in others.

As with introductions of other fish species, those planted in barren lakes or environments devoid of both predation and competition, have been the most successful. Those introductions made into lakes with existing resident fish have usually resulted in a marginal population.

Growth of the grayling in the Southeast Alaska area has been satisfactory, and in some cases has equalled that of the trout species.

TABLE 5 - Southeast Alaska Grayling Introductions, 1962 - 1968.

Name of Lake	Original Date Stocked	Success
Juneau		
Antler	1962; 64; 65; 66	Good population
Auke	1950*	None
Glacier	1965; 68	Poor**
Glory	1964; 65; 67	Poor**
Kathleen	1951*	None
Moraine	1965; 68	Poor**
Slide	1951*	None
Youngs	1950*	None
Sitka		
Beaver	1965; 66	Good population
Partofshikof	1967; 68	Undetermined
Surprise	1965; 66	Good population
Petersburg		
Cape Strait	1962	None
Wrangell		
Tyee	1962; 67; 68	Good population
Ketchikan		
Big Goat	1962; 65	Good population
Blue	1968	
Bower	1968	
Halfmoon	1964; 67	Undetermined
Josephine	1964	Undetermined
Little Goat	1968*	
Lower Lunch	1967	Undetermined
Manzoni	1965	Good population
Marge	1968	
Orton	1966	Population established
Snow	1966	Population established
Summit	1962; 67	Population established
Sundial	1965	Undetermined
Upper Mahoney	1966	Undetermined
Upper Manzanita	1968*	

*Adult stockings.
**Lakes reinfested with other species.

Table 6 depicts age-growth data obtained from five lakes investigated during the 1968 field season. Although a small sample, these lakes are considered fairly representative of other grayling populations in Southeast Alaska.

TABLE 6 - Grayling Age-Growth Data, Southeast Alaska, 1968.

Lake	Date	Average Length in Centimeters					
		Age 1	Age 2	Age 3	Age 4	Age 5	Age 6
Ketchikan							
Manzoni	1965	8.0	25.0	38.0	---	---	---
Big Goat	1962 & 1965	15.0	22.0	30.0	37.0	41.0	46.0
Petersburg							
Tyee	1967	18.5	---	---	---	---	---
Sitka							
Beaver	1965	16.2	29.2	---	---	---	---
Surprise	1965	21.8	21.1	---	---	---	---
Mean length by age:		15.9	24.3	34.0	---	---	---

Acceptance of the Arctic grayling by Southeast anglers has been very high, due primarily to its status as an exotic and fine sporting fish. Considerable enthusiasm has been expressed by anglers of all communities to have grayling populations established in their localities.

Catch success by the recreational angler has varied markedly from one lake to another. A few lakes have produced excellent catches, while others with good populations have provided very poor recreational angling. The grayling give some evidence of being more temperamental than the trout species and may at times be quite difficult to catch.

Age studies show spawning at two years of age. There are also indications that not all of the population mature and spawn at two years of age, with some holding-over and maturing in their third year.

The majority of lakes stocked with grayling have necessarily been "fly-in" waters, and as a result, angler creel census information has been quite fragmentary. There is some evidence that the apparent difficulty in catching grayling at times has resulted in some loss of interest by the sporting angler.

While the grayling introductions in Southeast Alaska have been successful, it appears that prior to further expanding the stocking program, an assessment should be made considering the criteria of angler effort and catch, age-growth relationships, spawning behavior, and general value to the Southeast Alaska recreational fishery.

Petersburg Area Creel Census 1968:

The assessment of the sport fish harvest in the Petersburg area freshwater streams was conducted during August and September of 1968. Petersburg Creek on Kupreanof Island, and Falls Creek and Blind Slough on Mitkof Island, were the three stream systems which received creel

census effort during 1968. All three of these streams receive good runs of coho, Oncorhynchus kisutch (Walbaum), and pink salmon, O. gorbuscha (Walbaum), with lesser numbers of chum salmon, O. keta (Walbaum). Anadromous cutthroat and Dolly Varden are numerous only in Petersburg Creek and Blind Slough. These three stream systems support the majority of the sport fishing effort in the Petersburg area as Falls Creek and Blind Slough are adjacent to the Mitkof Highway and Petersburg Creek is easily accessible by small skiff.

Petersburg Creek is located on Kupreanof Island one-half mile across Wrangell Narrows from the town of Petersburg. The most popular fishing area of Petersburg Creek for coho, pink salmon, anadromous cutthroat and Dolly Varden, is the intertidal area which extends nearly two miles upstream from Wrangell Narrows. The fishing success on Petersburg Creek varies with the tide level, with the best catches occurring one hour before to two hours after low water.

The creel census of sport anglers was initiated the first week of August and continued until September 21. Census was conducted on two randomly selected week days and one weekend day each weekly period. The census was taken when the greatest numbers of fishermen were on the stream. Although some fishing effort occurs for pink salmon, cutthroat and Dolly Varden trout before the first of August, the major effort is directed toward the coho salmon runs during August and September.

Fisherman success was fair during August with only an occasional coho salmon taken. The numbers of coho increased during the first of September with a corresponding increase in angler success, as shown in Table 7. Only limited numbers of trout entered the census, even though they are quite numerous in Petersburg Creek at this time of year.

TABLE 7 - Petersburg Creek Creel Census Summaries by Weekly Periods, 1968.

Weekly Period	No. of Anglers	No. of Hours	Fish Caught				Fish/ Hour	Fish/ Angler
			SS	PS	CT	DV		
8/4 -8/10	2	2	--	1	--	3	2.00	2.00
8/11-8/17	16	38	6	--	--	1	0.18	0.43
8/18-8/24	0							
8/25-8/31	4	4	1	4	--	3	2.00	2.00
9/1 -9/7	23	82	30	--	3	6	0.47	1.69
9/8 -9/14	15	39	14	--	5	7	0.66	1.73
9/15-9/21	25	71	32	--	1	--	0.46	1.32
Totals	85	236	83	5	9	20	0.50	1.38

Falls Creek crosses the Mitkof Highway at Milepost 9. The most popular sport fishing area begins 300 feet below the fish ladder and extends approximately one-half mile out onto the tide flats. As this area is intertidal, fishing success is closely related to tide level with the most productive time being one hour before to one hour after high tide. The majority of the anglers fish from the bank with only an occasional angler coming by skiff from Petersburg.

Falls Creek receives the earliest run of coho salmon in the Petersburg area with fish available as early as mid-July. The main run of coho pass through the fishery in August and are almost absent in the lower stream areas by the first of September. Falls Creek received a good run of pink salmon in 1968 and considerable angling effort was directed toward them, as the run of coho salmon was not as strong in 1968 as in past years. Unlike Petersburg Creek and Blind Slough, very few anadromous cutthroat and Dolly Varden are present in the intertidal area of Falls Creek. The catch per angler at Falls Creek was considerably less than that for Petersburg Creek and Blind Slough due in part to the absence of trout.

Creel census at Falls Creek was conducted on the same random schedule as Petersburg Creek throughout August until the termination of the census on September 21. Census was conducted twice daily, once by skiff at low tide from Wrangell Narrows and again by vehicle at high tide adjacent to the Mitkof Highway. This schedule enabled the census taker to contact the majority of the anglers on each census day.

Fisherman success was fair during the first two weeks of August, improving during mid-August, and tapering off again by the first of September. Angler effort ceased after the first week of September, when most salmon had moved on upstream (Table 8).

TABLE 8 - Falls Creek Creel Census Summaries by Weekly Periods, 1968.

Weekly Period	No. of Anglers	No. of Hours	Fish Caught SS	Fish Caught PS	Fish/ Hour	Fish/ Angler
8/4 -8/10	10	13	1	2	0.23	0.30
8/11-8/17	20	27.5	3	13	0.59	0.80
8/18-8/24	7	17	2	4	0.35	0.85
8/25-8/31	4	8	3	--	0.37	0.75
9/1 - 9/7	3	6	1	--	0.16	0.33
9/8 -9/14	0	--	--	--	--	--
9/15-9/21	0	--	--	--	--	--
Totals	44	71.5	10	19	0.41	0.66

Blind Slough is adjacent to the Mitkof Highway from Milepost 14 to Milepost 22 and can be reached by walking a short distance from the highway. The most popular fishing area is the "rapids", an intertidal area located approximately one mile above the mouth of the slough.

The "rapids" are reached either by a one-fourth mile foot trail that leaves the Mitkof Highway at Milepost 14 or by skiff at high tide. Blind Slough receives a good run of coho salmon that normally enter the lower areas of the slough in late August and reach a peak of abundance the first two weeks of September. Good numbers of chum salmon are present in the slough in August, and they support some angling effort prior to the arrival of the coho. Although some anadromous cutthroat and Dolly Varden are present throughout the year, their maximum abundance occurs during the salmon runs. Here, as at Petersburg Creek, most anglers fish exclusively for coho salmon and most trout are taken incidentally. However, a small number of anglers do fish for trout with good success.

Blind Slough was censused from August 1 to September 21 on the same schedule as Petersburg Creek and Falls Creek. The census was conducted twice each census day, once at low tide via skiff at the mouth of the slough and again at high tide at the "rapids". Fisherman success was poor until the middle of August but improved throughout the remainder of August and reached a peak during the first week in September (Table 9). Numbers of fishermen declined after September 15 as most of the coho still present in the "rapids" area were beginning to darken as they approached spawning condition.

TABLE 9 - Blind Slough Creel Census Summaries by Weekly Periods, 1968.

Weekly Period	No. of Anglers	No. of Hours	Fish Caught SS	CS	CT	DV	Fish/ Hour	Fish/ Angler
8/4 -8/10	3	6	--	--	--	--	--	--
8/11-8/17	6	10	--	4	1	2	0.70	1.16
8/18-8/24	14	51	8	14	2	--	0.47	1.71
8/25-8/31	16	56	18	--	4	4	0.46	1.62
9/1 -9/7	12	37	19	--	3	4	0.70	2.16
9/8 -9/14	7	23	18	--	13	8	1.69	5.57
9/15-9/21	3	6	2	--	6	2	1.66	3.33
Totals	61	189	65	18	29	20	0.70	2.16

The angler catch censused on the sample days was expanded to provide the estimated all-season catch. Data obtained on census days was applied to total days in the month with an estimated two-thirds of all anglers contacted on any given census day. Each stream system censused was expanded separately to avoid bias due to number of days censused and sample size. The total estimated season's catch for Petersburg Creek, Falls Creek and Blind Slough is presented in Table 10.

TABLE 10 - Estimated Season's Catch, Petersburg Area, 1968.

	Total Anglers	Angler Hours	Total SS	PS	CS	CT	DV	Fish/ Hour	Fish/ Angler
Petersburg Creek	570	1,581	541	53	--	58	185	0.53	1.47
Falls Creek	225	366	51	97	--	--	--	0.40	0.66
Blind Slough	343	1,063	358	--	104	158	109	0.69	2.13
Totals	1,138	3,010	950	150	104	216	294	0.57	1.51

Comparative annual Blind Slough and Petersburg Creek sport catches for years 1966-1968 are presented in Table 11. The 1968 coho salmon catch at Blind Slough and Petersburg Creek was the best recorded during the three years the census has been conducted.

TABLE 11 - Estimated All-Season Catches Blind Slough and Petersburg Creek, 1966-1968.

	Blind Slough			Petersburg Creek		
	1966	1967	1968	1966	1967	1968
Anglers	465	365	343	369	198	570
Angler hours	1,141	862	1,063	765	396	1,581
Coho	349	212	358	118	81	541
Pink	---	---	---	224	---	53
Chum	---	---	104	7	---	---
Cutthroat	76	32	158	33	99	58
Dolly Varden	251	176	109	145	72	185
Fish/Angler	1.45	1.15	2.13	1.43	1.27	1.47
Fish/Hour	0.59	0.49	0.69	0.69	0.64	0.53

Blind Slough Coho Escapements:

The assessment of the coho salmon spawning excapements in Blind Slough has been conducted each fall since 1966. These counts are conducted late in October to coincide with the peak spawning activity in most of the spawning areas. There are three major tributaries and about 20 lesser ones entering Blind Slough between Wrangell Narrows and Milepost 22 Mitkof Highway, all of which receive spawning coho.

Total escapement counts have varied from a low of 858 coho in 1967 to the high of 2,040 coho counted in 1968 (Table 12). These figures are peak spawning counts and do not include some fish that enter the slough as late as December.

TABLE 12 - Coho Salmon Escapements, Blind Slough, 1966-1968.

Year	Total
1966	1,400
1967	858
1968	2,040

Lower Southeast Alaska

The lower Southeast area encompasses nearly 15,000 square miles. The community of Ketchikan is the largest population center in the district, and the sport fish investigations are carried on from this location.

One unique characteristic of the area in common with other Southeast Alaska Districts is the scarcity of road systems and the degree to which boat or airplane travel is the common access to the sport fishing areas. There is a greater mileage of logging roads than public roads, but these are not contiguous, forcing initial access by boat or plane.

Topographically the lower Southeast area is heavily indented and of mountainous nature with many deep lakes. Steep gradients are the rule with most streams.

The area has an average rainfall of 160 inches with snow cover remaining throughout the summer at elevations of 3,500 feet and above. Lakes at these elevations frequently do not lose their ice covers.

Waters accessible to and/or in close proximity of population centers received the primary investigational work. Surveys of a cursory nature were conducted on more remote waters for evaluation of future potential and entry into the catalog and inventory of existing and potential fish environments.

Lake Investigations, Lower Southeast Alaska:

During the 1968 field season, 19 lakes were investigated in the lower Southeast area. Of these, fourteen were surveyed for the first time to record the "vital statistics" of the lake, including an assessment of existing fish populations or fish potential, general characteristics of the lake, spawning grounds available, size and character of the watershed and the outlet stream. A re-check of five other lakes was also made to determine the degree of success of previous fish stockings and the current condition of the fish.

The 14 lakes documented in Table 13 are those that received initial investigational surveys during the summer of 1968.

TABLE 13 - Initial Lake Surveys, Lower Southeast Alaska, 1968.

Lake	Location	N. Lat.	W. Long.	Quadrangle
Margarita	Revilla. Is.	55°41'	131°36'	Ketchikan (C-5)
Gokachin	Revilla. Is.	55°25'	131°08'	Ketchikan (B-4)
Basin	Revilla. Is.	55°25'	131°10'	Ketchikan (B-4)
Rex Strong	Mainland	56°58'	130°59'	Ketchikan (D-3)
Lake Cr.	Mainland	56°10'	130°55'	Brad. Canal (A-3)
Minne	Mainland	56°09'	131°05'	Brad. Canal (A-4)
Very Inlet	Mainland	54°57'	131°50'	Pr. Rupert (D-3)
Cabin Cr.	Mainland	55°21'	131°45'	Ketchikan (B-3)
Bluff	Revilla. Is.	55°47'	131°26'	Ketchikan (D-5)
Neets	Revilla. Is.	55°47'	131°28'	Ketchikan (D-5)
Robinson	Mainland	55°55'	131°02'	Ketchikan (D-4)
Mesa	Revilla. Is.	55°24'	131°07'	Ketchikan (B-4)
Venison	Revilla. Is.	55°33'	131°02'	Ketchikan (C-4)
Paul	P. Wales Is.	55°08'	132°05'	Craig (A-1)

Lakes under initial investigation were sampled a minimum of six net-days for positive determination of existing fish species, if any. Those lakes tested for indications of previous stocking success were subjected to briefer periods of gill net effort or until failure was indicated after six net days.

The results of test netting with vari-mesh gill nets for population analysis in Lower Southeast Alaska is presented in Table 14.

TABLE 14 - Test Netting Summaries, Lower Southeast Alaska, 1968.

Lake	Species*	No. Fish	Length Range Centimeters	Length Mean Centimeters	Percent Comp.
Bluff	DV	111	13-43	28	69
	RS	50	10-23	21	31
Venison	No fish caught				
Paul	DV	15	18-31	25	83
	SS	3	10	10	17
Rex Strong	No fish caught				

*DV = Dolly Varden; SS = Silver Salmon; RS = Red Salmon (Kokanee).

In addition to the lakes surveyed for the first time, five lakes were checked to determine the status of fish introductions made in previous years. The date of original stocking, species introduced, and length data are presented in Table 15.

TABLE 15 - Stocking Evaluations, Lower Southeast Alaska, 1968.

Lake	Species	Date	Average Length in Centimeters					
			Age 1	Age 2	Age 3	Age 4	Age 5	Age 6
Manzoni	GR	1965	8	25	38	--	--	--
Upper Sundial	GR	1965	--	--	None recovered		--	--
Downdraft	RB	1965	--	--	31	--	--	--
Walker	RB	1966	--	45	--	--	--	--
Big Goat	GR	1962/ 1965	15	22	30	37	41	46

Fish Stockings:

Five lakes were stocked with Arctic grayling in the lower Southeast area during 1968. These lakes had been checked and found to be barren of fish. Two of the plants were made with adult grayling from a population established by previous introductions, and three were stocked with fry.

Names and locations of these lakes and numbers of grayling stocked are presented in Table 16.

TABLE 16 - Grayling Stockings, Lower Southeast Alaska, 1968.

Lake	Location	Number
Blue	Revillagigedo Island	10,000 fry
Marge	Prince of Wales Island	20,000 fry
Bower	Mainland, Boca de Quadra	20,000 fry
Little Goat	Mainland, Rudyerd Bay	100 adults*
Upper Manzanita	Revillagigedo Island	50 adults

*These adult grayling ranged 15-43 cm and were taken from Big Goat Lake.

Recommendations for future fish stockings in the Ketchikan area are based on findings of surveys largely conducted during the 1968 season. All the lakes named for stocking are devoid of fish or have low populations by reason of spawning ground limitations. The lakes, their locations and species recommended for stocking are depicted in Table 17.

TABLE 17 - Fish Stocking Recommendations, Lower Southeast Alaska, 1968.

Lake	Location	Species Recommended
Venison	Revillagigedo Island	Rainbow
Niblack Point	Cleveland Peninsula	Rainbow
Chopper	Revillagigedo Island	Rainbow
Moira	Prince of Wales Island	Rainbow
Crater	Cleveland Peninsula	Rainbow
Kendrick	Prince of Wales Island	Rainbow
Rex Strong	Mainland	Grayling
Minne	Mainland	Grayling
Upper Mahoney	Revillagigedo Island	Grayling

Creel Census:

A creel census of freshwater anglers was conducted primarily on an opportunity basis, and without formal design. The locations checked were not particularly indicative of popularity with local anglers nor representative of the pressure pattern.

The data in Table 18 does, however, indicate relative angler success and the timing of the fishery. Often all the species listed, except grayling, may enter the creel on the same day.

The catch of cutthroat is notably higher than the other species and is normal by reason of angler preference and occurrence as resident or sea-run fish. Steelhead anglers often take rainbow, cutthroat. silver salmon and/or Dolly Varden as an incidental catch. The run of silver salmon in the streams was not excessively large in 1968. Grayling began to appear for the first time, and in some cases, downstream from the lakes in which they were planted.

TABLE 18 - Freshwater Creel Census, Lower Southeast Area, 1968.

Date	Location	Anglers	Ct	SH	Rb	DV	SS	Gr	Remarks
4/2	Karta River	6	--	6	--	--	--	--	
4/3	Karta River	2	--	2	--	--	--	--	
5/2	Hunter Bay Straight	1	6	1*	2	1	--	--	*14 spent fish released
5/3	Humpback Creek	2	2	1	2	--	--	--	
5/15	Wolverine Creek	3	--	--	1	1	--	--	
6/27	Cabin Creek	2	28	--	1	--	--	--	
6/29	Walker Creek	3	--	--	2	2	--	--	
7/16	Humpback Lake	8	24	--	--	4*	--	--	*all released
8/8	Margarita Lake	1	15	--	--	--	--	--	
8/8	Lake Creek Lake	2	--	--	--	6	--	--	

TABLE 18 (Cont.) - Freshwater Creel Census, Lower Southeast Area.

Date	Location	Anglers	Ct	SH	Rb	DV	SS	Gr	Remarks
8/14	Walker Lake	3	--	--	10	--	--	--	
8/14	Manzoni Lake	3	--	--	--	--	--	18	
8/19	Talbot Lake	2	9	--	--	--	--	--	
8/30	Winstanley Lake	2	10	--	--	--	--	--	
9/2	Port Stewart Creek	2	2	--	--	--	--	--	
10/1	Klawak Lake	7	8	--	--	--	4	--	
10/2	Karta River	5	3	--	--	15*	6	--	*released
10/29	Port Stewart Creek	2	1	--	--	--	--	--	
10/30	Naha River	2	--	3	--	--	--	--	
11/8	Port Stewart	2	1	--	--	--	2	--	
11/17	Karta River	2	--	1	2	--	1	--	

Egg-Taking Operations:

A number of sites were evaluated as possible egg taking locations in 1968.

Miller Lake outlet was measured and closely checked as a possible egg-take site. The weir would be a post and panel type 100 feet long. The run-off fluctuation appears to be not more than three feet above the normal flow. The watershed is nearly 6,000 acres, and Miller Lake is 341 acres. The site lends itself to easy weir construction and is 27 air miles southwest of Ketchikan on Prince of Wales Island.

Hunter Bay stream was checked and found to have what appears to be an adequate run of steelhead to tolerate an egg take. The watershed is 18,000 acres. Flood marks indicate a stream level fluctuation of four feet which could preclude attempts to maintain a weir. Also, it is on the outside of lower Prince of Wales Island and 45 air miles from Ketchikan or 65 miles by water via Cape Chacon.

Checks were also made in Nakat Bay, Willard Inlet and Fillmore Inlet of the streams there. These hold low temperatures until relatively late in the spring (38°F on May 2, 1968), and no fish were noted by ground and aerial inspection.

An inspection was made of Humpback Creek on Boca de Quadra. There is a run of steelhead there which is being subjected to some sport fishing pressure. The run appears inadequate to tolerate an egg take. Also, the weir site is over 200 feet wide and stream fluctuations appear to be greater than three feet.

Multiple Use Activities:

The effect of watershed-use activities continues to be monitored with respect to its influence on sport fisheries. A close check is maintained on projected road construction with its attendant stream bed changes, gravel removal and physical effects on the water and flow rates.

Those waters accessible from the Tongass Highway System received priority attention, with domestic water use still impeding full multiple use of several of these lakes.

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